CHAPTER XVI: HARBOR DEFENSES, 1776-1970

The coastal defenses at Fort Winfield Scott together with others at San Francisco Bay constituted one of the best and most extensive outdoor museums of the history of coastal defense engineering and architecture to be found in North America. They illustrated the evolution of coastal defenses from the colonial 18th century (cannon only), through the "American Third System" (masonry fort at Fort Point), post-Civil War (earthwork East Battery and magazines), era of modernization (1890-1905), World Wars I and II, and on to the Nike missile era. The physical evidence illustrated such new elements as rifled guns, breech-loading, artillery fire control, submarine mining, and antiaircraft defense. They demonstrated the types of emplacements required for a large variety of guns and mortars between 1853 and World War II, from Civil War smoothbores to the great 12-inch rifles and mortars, and from brick forts to missile launchers.

Spanish-Mexican Period, 1776-1846

When Capt. George Vancouver, British Royal Navy, visited San Francisco Bay in November 1792, he observed that the Spanish force at the Presidio of San Francisco could salute his arrival with only one operable cannon. Spanish authorities, in turn, were embarrassed that the foreigner had discovered the weak state of San Francisco's defenses. As a result Spain erected a defensive strongpoint, the Castillo de San Joaquin, on the southern point of the entrance to the bay, Punta del Cantil Blanco (White Cliff Point, today's Fort Point). Dedicated on December 8, 1794, the work consisted of an adobe-walled emplacement, faced with fired brick and mortar, having about thirteen gun embrasures. Behind the ten-foot thick walls a wooden esplanade, made of heavy timbers and plank flooring, supported the cannon. Other structures included a barracks building, sentry box, fortified tower, and mess room. An inspection in 1796 disclosed that the armament consisted of three 24-pounder guns, two iron 12-pounders, and eight bronze half culverins (cannon carrying a nine-pound shot).

Before long fierce storms and earthquakes attacked the adobe walls and they gradually deteriorated. Finally, Spanish authorities rebuilt the fortification in 1815. The horseshoe-shaped, brick and mortar parapet now had sixteen gun embrasures and a new esplanade supporting the guns. When Capt. Frederick

W. Beechey, also of the Royal Navy, visited in 1826 he counted nine cannon mounted in the castillo. As before, deterioration set in and by 1841, under the Mexican administration, the castillo lay abandoned. When Lt. John Charles Fremont, U.S. Army, briefly occupied the castillo in 1846, he counted fourteen brass cannon, which his men spiked by inserting butcher steels in the touchholes, breaking them off flush with the top of the guns so that they could not easily be removed, but would have to be carefully drilled out. In another account Fremont said he had found "six large and handsome pieces." Shortly thereafter a naval officer, Lt. Jonathan S. Misroon, visited the castillo saying that he had counted ten guns. In 1847 an army engineer, Lt. William H. Warner, prepared a plan of the abandoned castillo whose terreplein was established at 96.7 feet above sea level.[1]

In 1893 a San Francisco newspaper reported that one of the old Spanish cannon, described as a rust-encrusted iron 32-pounder, that had long lay on the ground at the point had been moved to the adobe officers' assembly hall (today's officers' club 50) and put on display. The cannon weighed two tons and its length came to eighteen feet. A close examination showed that the gun had been spiked.[2]

In 1994 six Spanish cannon, bronze and not iron, from the old Castillo de San Joaquin were displayed at the Presidio of San Francisco: two at the entrance to the officers' club, 50; two at Pershing Square, one at the former Presidio Army Museum, 2; and one at Fort Point, 999:

Officers' club

Spanish bronze cannon. Cast in 1673. Named "Poder." On a concrete mount at the east side of the entrance.

Spanish bronze cannon. Cast in 1673. Named "San Pedro." On a concrete mount at the west side of the entrance. This cannon has a spike in the touchhole presumably from Fremont's operation.

---

1. Langellier, *El Presidio*, pp. 36-144. A butcher steel is a knife sharpener that looks like a rat-tail file.

2. *San Francisco Morning Call*, September 18, 1893; *San Francisco Examiner*, September 7, 1893; Bearss, *Fort Point*, p. 316. The fate of this gun is unknown, as there are no iron guns known to be of Spanish origin at the Presidio today.

Pershing Square

Spanish bronze cannon. Cast in 1679. Named "S. Fracisco" (sic)." On a concrete mount on the east side of the Presidio flagstaff.

Spanish bronze cannon. Cast in 1693. Named "La Birgin de Barbaneda." On a concrete mount on west side of the Presidio flagstaff.

Presidio Museum

Spanish bronze cannon. Cast in 1628 and possibly the oldest bronze fort gun in the United States. Named "S Domingo." On a replica mount on the lower porch, east side of building 2.

Fort Point

Spanish bronze cannon. Cast 1684. Named "San Martin." On a replica carriage and placed against the south inner wall of the fort, west of the sally port.

All six guns had been cast at Lima, Peru.[3]

Early American Period, 1846-1860

In the spring of 1848, elements of the 1st New York Volunteer Infantry Regiment, stationed at the Presidio and with little enthusiasm, made repairs to the old Spanish castillo and may have mounted a

---

3. NPS, *National Register Registration Forms*, pp. 7-62 and 7-199. Seven more of these Peruvian guns exist in the United States, six as landscape features at the U.S. Naval Academy at Annapolis, Maryland, and one, "S. BRVNO," at the Washington Naval Yard at Washington, D.C. All six of those at Annapolis were die-stamped around the muzzle with a steel die, "TAKEN BY THE NAVY IN CALIFORNIA-1847." It is possible that two or more of the six came from the Presidio of San Francisco. One Annapolis gun, "IESVS" (Jesus), has the same name as a gun that was at the Presidio of Monterey and the chances are it is that gun, but the origin of the other five has not been ascertained. They may have come from any of the presidios in Alta California. The gun at the Washington Navy Yard was marked as having been taken in a war with the Barbary Pirates in the Mediterranean, 1801-1805 and 1815, and also as having been captured from the Confederates at Norfolk, Virginia, in 1862, i.e., it was at the Norfolk Navy Yard in 1861 when the Confederates captured that facility, and was still there when the Union forces recaptured it. It is not impossible that the gun came from a war with the Barbary Pirates, but it seems improbable. The odds are that this is another Spanish bronze gun made in Peru and seized in California in 1847, for which the provenance has been lost. Contributed by Historian Gordon Chappell, NPS.

couple of cannon at the redoubt. A year later, 1849, the Presidio's regular troops did mount four 32-pounder guns and two 8-inch howitzers at the point. But in order to prepare Fort Point for a new masonry fort, army engineers demolished the castillo and reduced the headland from elevation 97 feet to 16 feet and removed the guns formerly mounted in the work.

The new masonry fort, under construction in 1854, was described as "the key to the whole Pacific Coast in a military point of view." While the work continued, engineers emplaced nine 32-pounders in temporary positions on the headlands. Plans called for a total of 142 weapons at Fort Point:

1st tier of casemates	–	28 42-pounder, smoothbores 2 24-pounder, smoothbores
2d tier	–	28 8 -inch columbiads 2 24-pounder smoothbores
3d tier	–	28 8-inch columbiads 2 24-pounder, smoothbores
barbette tier	–	9 10-inch columbiads 17 8-inch columbiads 11 32-pounder smoothbores
ten-gun battery outside the fort	–	10 42-pounder smoothbores
counterscarp gallery	–	5 24-pounder flank howitzers

As the fort neared completion the Army's chief engineer described it, "There is no stronger, no more efficient, than this, gun for gun, in any country."

When finished in 1861, Fort Point, the only complete, brick-walled, American Third System fortification in the West Coast's coastal defenses, received a garrison that year. Fort Point and Alcatraz Island supplied the principal defenses for San Francisco Bay as the Civil War commenced.[4]

Despite the fort's potential, events during the Civil War soon cast a shadow on its permanency as a vital contributor to the defenses. In 1864 an army board of engineers investigated the events at Fort Pulaski, Georgia, where rifled guns had breached the scarp after a short bombardment, and at Fort Jackson,

4. Thompson, *Fortifications*, pp. 27-28, 31, 40, and 44.

Louisiana, where projectiles from a 13-inch mortar had battered the defenses. These incidents strongly indicated that a technical revolution in heavy ordnance had apparently made a handsome and costly third system fort obsolete. There would be no further construction in the manner of the fort at Fort Point. Nevertheless, Fort Point continued to be armed for another thirty-five years, until the beginning of the twentieth century.[5]

An inspection of Fort Point in 1868 showed seventy-six heavy weapons mounted, including 8- and 10-inch columbiads; 24-, 32-, and 42-pounder smoothbores; 24-pounder howitzers; 10-inch siege mortars; and 24-pounder Coehorn mortars; as well as eighty-nine unmounted weapons including 10- and 15-inch Rodman guns; 42-pounder smoothbores; 200- and 300-pounder Parrott rifles; 10-inch siege guns; and 8-pounder brass Mexican guns. By then, the Ten-gun Battery outside the fort had been disarmed.[6]

East and West Batteries

With the demise of multi-tiered, masonry forts following the Civil War, army engineers developed plans for future coastal batteries incorporating the lessons learned. These plans called for thick sand parapets at the front of the barbette batteries, twenty feet between the crests and supported at the rear by a four-foot thick breast-height wall. Armament consisted of 10-inch and 15-inch Rodman guns mounted in pairs with an earthen traverse between each pair. These traverses measured fourteen feet in height, twelve feet thick at the top, and twenty feet thick at the bottom. Each traverse contained a concrete service magazine. At Fort Winfield Scott these plans took shape in the construction of two permanent works, East and West batteries, on the headlands above Fort Point. Construction began on West Battery in 1870 and, three years later, on East Battery. West Battery was essentially completed by 1872 and had twelve guns mounted by 1874. East Battery was still under construction in 1877 when the U.S. Congress refused to pass further appropriations for this type of construction.[7] Plans for the construction of similar barbette batteries were prepared for Lime Point across the Golden Gate on the Marin headlands (the future Fort

---

5. *Ibid*, pp. 62-63; Bearss, *Fort Point*, pp. 184-187. The fort at Fort Point never received an official name. Over the years it came to be called simply Fort Point, and so it will hereinafter.

6. Thompson, *Fortifications*, p. 73. In 1994 two 10-inch Rodman guns from Fort Point were displayed at Pershing Square, main post.

7. *Ibid*., pp. 81, 86, and 95. Neither battery received a formal name.

Baker), on Alcatraz Island, at Point San Jose (the future Fort Mason), and on Angel Island. Of these, only the work at Fort Point and at Lime Point and the remodeling of Alcatraz's existing batteries were carried out.

By the late 1880s the artillerymen concentrated their training on the 15-inch Rodman gun. West Battery had twelve of these large guns mounted in 1891. East Battery, however, did not receive its first Rodman until that year. A typical practice at the guns was described in general orders published in July 1881. These orders directed that practice firing would occur at the 1,700 yard range and at the center of imaginary squares corresponding to one plotted on the harbor chart. The ammunition allowance at each of the two ranges, 1,700 and 2,700 yards: eight shell and sixty pounds of mammoth powder and two shot with 100 pounds of mammoth powder.[8]

One problem the Presidio's artillerymen wrestled with during these years was the mile and a half march twice each day from their barracks at the main post to West Battery at the Fort Point headlands. To overcome this time-consuming marching, army engineers agreed to construct a practice battery at the main post, a battery that was not considered to be a part of San Francisco's coastal defenses but which failed to appear on any contemporary maps of the Presidio. In 1891 the engineers constructed four wooden platforms for 8-inch converted Rodman rifles at a site somewhere near the railroad (dummy) terminal and on the drill ground in the northeast portion of the reservation. A year later the engineers built four more wooden platforms and the battery grew to eight 8-inch converted rifles. At that point the War Department asked why this battery was needed when there were still sixteen 8-inch Rodmans mounted in the old masonry fort. The Presidio replied that the guns in the fort were mounted on obsolete carriages and had limited fields of fire thus making them unsuitable for practice.

By 1895 and perhaps earlier, the California National Guard also made use of the practice battery – on Sundays. The battery's continued existence was threatened in 1896 when the Army considered filling and grading a part of the marshes in the lower Presidio. The post commander, Col. William Graham, wrote to the department saying that removal of the battery's earthworks would render the guns practically useless for instruction and make their location unsightly in appearance. Nevertheless, the Department of California ordered the battery dismantled and the 8-inch rifles moved to East Battery at Fort Winfield

8. CO, PSF, January 20, 1891, to Department of California, Register of Letters Received; Orders 166, July 12, 1891, Post Orders 1891-1892, PSF, both in RG 393, NA.

Scott where a 15-inch Rodman had been mounted.[9]

Even as soldiers practiced on the 8-inch rifles, momentous events were underway in the evolution of coastal defenses in the United States. In his seminal book, *Seacoast Fortifications of the United States*, E. Raymond Lewis discusses the great advances that took place in the 1880s in weapons production: steel in place of iron for guns, perfection of breech loading, and more effective propellants. The result was lighter, stronger, longer, and more powerful weapons. An indication of the coming changes, perhaps, was a telephone call the Presidio post commander made to the department on August 28, 1890, saying he had eighty-six obsolete seacoast guns ready for sale or shipment.[10]

Endicott Period, 1890-1915

In the 1880s the United States began to address the matter of the modernization of the coastal defenses of the nation, of which the Chief of Engineers Horatio G. Wright wrote, "it is believed that there is hardly any civilized nation so illy prepared for war, so far as maritime defenses are concerned as the United States." In 1885 Secretary of War William C. Endicott headed a Board on Fortifications or Other Defenses that announced a list of twenty-two seaports in their order of importance for their defense. New York Harbor led the List; San Francisco Bay stood in second place. The Board called for 110 guns and 128 mortars for San Francisco. Congress dragged its feet on the Endicott recommendations, but in 1890 the Army's New York board of engineers prepared a new project for the defense of San Francisco Bay and soon the first appropriation, $201,000, reached San Francisco and the work began.

In June 1891 construction began on the first modern battery in the defenses of the West Coast. At Fort Winfield Scott army engineers began work on three emplacements for 10-inch guns to be mounted on disappearing carriages, a work eventually to be named Battery Marcus Miller, 1660. Construction of this and other batteries involved the gradual destruction of West Battery whose 15-inch Rodman guns were

---

9. W. Graham, May 22, 1890, to War Department; April 22, 1891, to Chief of Ordnance; and April 21 and May 6, 1896, to Department of California; C.A. Jenks, April 18, 1895, to CO, PSF, Register of Letters Received; W. Shafter, December 5, 1896, to C.R. Sutter, PSF, Letters Sent, RG 393, NA; Thompson, *Fortifications*, p. 137.

10. Graham, August 28, 1890, to Department of California, Letters Sent, PSF, RG 393, NA.

removed. Eventually only six of the former battery's magazines and their earthen traverses remained: on the left flank of Battery Marcus Miller, 1658; on the right flank of Battery Boutelle, 1651; on the right flank (1647) and left flank (1646) of Battery Godfrey; and two standing alone south of Battery Godfrey, 1643 and 1640.[11]

Early in 1892 the engineers began work on a battery for three 12-inch guns mounted on barbette carriages – the future Battery Godfrey, 1647. The third new battery at Fort Winfield Scott was for modern breech-loading, 12-inch mortars. Later named Battery Howe-Arthur Wagner, 1287, its construction began in April 1893. Completion of Battery Marcus Miller was delayed while the Ordnance Department developed the details for disappearing carriages. The first platform at Battery Godfrey was the first 12-inch platform to be completed in the United States. Composed of Portland cement it was reinforced horizontally and vertically with several tons of streetcar rails. The emplacement was completed in 1895 and the West Coast's first 12-inch rifle was mounted in June. Army officers in the Bay Area received notice that Battery Godfrey would fire the huge 12-inch gun at 11:00 a.m., September 20, 1895. The first of the 12-inch mortars in Battery Howe had already fired, in February 1895, and all sixteen mortars were mounted by June of that year.[12]

By the end of 1896 work had begun on two more batteries at Fort Winfield Scott: Saffold, 1354, two 12-inch guns on barbette carriages, and Lancaster, 998, three 12-inch rifles mounted on disappearing carriages. An armament report at that time recorded that seven 15-inch Rodmans remained in both East and West batteries, and the lower two tiers in the old masonry fort still held thirty-two 10-inch Rodmans and thirteen 8-inch converted rifles. Of the new works, Batteries Howe and Arthur Wagner had sixteen mortars mounted and Batteries Godfrey and Marcus Miller each had two of its three guns in place.[13]

While work progressed on these first moderns batteries at Fort Winfield Scott, the U.S. Congress caused the Army to be involved with an unusual weapon, the "pneumatic dynamite gun." In 1888 Congress appropriated $400,000 for the purchase of these guns and two experimental batteries – Sandy Hook, New

---

11. Thompson, *Fortifications*, p. 96. The magazines destroyed were broken up and embedded in the new concrete work.

12. *Ibid*, pp. 141, 144, 146, and 154; AAG, Department of California, September 19, 1895, to CO, PSF, Register of Letters Received, PSF, RG 393, NA.

13. Thompson, *Fortifications*, p. 157.

Jersey, and Fort Winfield Scott – were established. The so-called Dynamite Battery, 1399, south of Battery Godfrey, had three strange-looking guns mounted by December 1895. Dynamite's large power house, which had compressed air for firing the guns, stood to the rear. Test firing of the weapons took place that month. Although results of the firing exceeded expectations, the Army remained unenthusiastic, saying that submarine mines were the best way to handle high explosives. Despite continuing congressional pressure no more dynamite batteries were built.

During the Spanish-American War army engineers built high earthen traverses around Dynamite's silent gun emplacements and erected bombproof magazines and covered passageways. In 1901, however, the three guns were declared obsolete and by 1904 had been sold.[14]

Work progressed steadily on additional coastal batteries at Scott:

> Batteries William McKinnon-Stotsenberg, 1430, sixteen 12-inch mortars. Work began in July 1897.
>
> Battery Cranston, 1661, two 10-inch guns on disappearing carriages. Construction began in 1898.
>
> Battery Boutelle, 1651, three 5-inch rapid fire guns.
>
> Battery Slaughter, three 8-inch rifles on disappearing carriages. Construction got underway in 1898.

Work began on three other batteries in 1901: Sherwood, 636, two 5-inch guns; Baldwin, two 3-inch rapid fire guns; and Blaney, 635, four 15-pounder rapid fire guns.[15]

The last two Endicott batteries at Fort Winfield Scott were Chamberlin, 1621, (1902-1904), four 6-inch guns on disappearing carriages, and Crosby, 1630, two 6-inch rifles on barbette carriages. These seventeen modern batteries formed forty-seven percent of San Francisco Bay's thirty-six coastal batteries at the beginning of the twentieth century. They and their companions provided an ample defense for San

---

14. *Ibid*., pp. 158-164; C.R. Sutter, May 9, 1898, to Chief of Engineers, General Correspondence 1894-1923, OCE, RG 77, OCE.

15. Battery Howe, originally sixteen 12-inch mortars, was divided, one part retaining the name Howe, the other becoming Battery Arthur Wagner. Similarly the mortar battery Stotsenberg was divided, one half becoming Battery William McKinnon.

Francisco Harbor, the most important harbor on the West Coast at that time.[16]

During the years the new batteries were under construction the Army retained some of the older guns at Fort Winfield Scott in case of an emergency and for training. An armament report in 1897 stated that all the 15-inch Rodmans had been removed from West Battery and five of them had been remounted in East Battery. The latter also had four 8-inch converted rifles (probably from the Presidio's practice battery). As for the artillery still in old Fort Point, the Army decided in 1898 to discontinue supplying them with

---

16. The battery names:

Lancaster. For Lt. Col. James M. Lancaster, 3d Artillery, who died at Fort Monroe, Virginia, in 1900. Graduate of West Point. Fought in Civil War.

Cranston. for Lt. Arthur Cranston, 4th Artillery, killed in action in the Modoc War. Stationed at the Presidio when the Modoc War began.

Marcus Miller. For Brig. Gen. Marcus Miller, Artillery. Commanding officer of the Presidio in 1898. West Point graduate. Civil, Modoc, and Nez Perce wars.

Boutelle. For Lt. Henry M. Boutelle, 3d Artillery. Killed in action in the Philippines, 1899.

Godfrey. For Capt. George J. Godfrey, 22d Infantry. Killed in action in the Philippines, 1899.

Saffold. For Capt. Marion M. Saffold, 13th Infantry. Killed in action in the Philippines, 1899.

Crosby. For Lt. Franklin B. Crosby, 4th Artillery. Killed in action at Chancellorsville, Virginia, 1863.

Chamberlin. For Capt. Lowell A. Chamberlin, 1st Artillery. Civil War. Stationed at the Presidio at the time of his death, 1889.

Baldwin. For Lt. Henry M. Baldwin, 5th Artillery. Died of wounds, Cedar Creek, Virginia, 1864.

Sherwood. For Lt. Walter Sherwood, 7th Infantry. Killed in action in battle with Seminole Indians, Florida, 1840.

Slaughter. For Lt. William A. Slaughter, 4th Infantry. Killed in action by White River Indians, Washington Territory, 1855.

Blaney. For Lt. Daniel Blaney, 3d Artillery. Killed in action by British forces, Fort Oswego, New York, 1814.

Howe. For Col. Albion P. Howe, 4th Artillery. Mexican and Civil wars. Commanding officer of the Presidio in 1877. Died 1897.

Arthur Wagner. For Col. Arthur L. Wagner. Spanish-American War. Military writer and professor.

Stotsenberg. For Capt. John M. Stotsenberg, 6th Cavalry. Killed in action in the Philippines, 1899.

William McKinnon. For Chaplain William D. McKinnon, 3d Cavalry. Spanish American War and Filipino Insurrection. Died 1902. Thompson, *Fortifications*, pp. 200-205.

ammunition. A year later all these guns were dismounted and most of them sold along with ten 15-inch Rodmans.[17]

The first firing of the new batteries to be on record occurred in November 1900. While details of this event are lacking, a report indicated that Batteries Stotsenberg and Lancaster were involved. Those two reported the most damage from the shock effect. Four wooden latrines at Lancaster were so badly damaged that it was thought additional firing would destroy them. In June 1903 artillerymen undertook experimental salvo firing at Batteries Lancaster, Godfrey, Saffold, and Stotsenberg to determine blast effects. The data was needed to determine how far from the guns should the fire control and battery commander stations be to protect the delicate instruments.

The charges for the guns were 247 pounds of smokeless powder with cast-iron projectiles weighing 1,000 pounds; for the mortars, 53.4 pounds of smokeless powder with 800-pound cast-iron projectiles. At Lancaster, first a single shot was fired from each gun, then a salvo from the three weapons. The same sequence was followed at Godfrey, then at Saffold. Finally, a salvo from all sixteen 12-inch mortars at Stotsenberg concluded the test.

At Lancaster closed doors split, hinges broke, and, again, the latrines were damaged. Windows in a building 100 yards away were broken as were windows at Fort Miley, two miles distant. Similar damage was reported at Saffold and Godfrey. At the time these batteries fired, the lighthouse on Alcatraz Island shook. Stotsenberg's salvo caused extensive damage to windows, heavy doors, and latrines. The grassy parapets about the battery caught fire and artillerymen scampered to squash the fire with their coats. At the Marine Hospital 800 yards distant plaster cracked and windows broke. Several citizens in San Francisco submitted small claims for damages.

The conclusions drawn from the experiment were that all doors and windows must be open, battery commander's stations be at least 100 yards from guns, positions to the side were safer than those to the rear of a battery, and position-finding instruments must be on firm and solid bases and other instruments

---

17. Department of California, April 11, 1898, to CO, PSF, Register of Letters Received, PSF, RG 393, NA; Thompson, *Fortifications*, pp. 172 and 197. The Presidio commanding officer recommended burying any 15-inch Rodmans that did not sell.

be freely suspended.[18]

Submarine Mine Depot

The first submarine mines, then called torpedoes, arrived at San Francisco in 1884. The first time they were laid in San Francisco Harbor occurred in June 1898, during the Spanish-American War. Neither the Presidio nor Fort Winfield Scott played a role in this undertaking. In 1903 responsibility for submarine mine defense passed from Engineers to Artillery and the Presidio was selected to be the site of a new mine depot. Construction, however, did not get underway until 1907. During the next three years work continued on the facilities located at the west end of the lower Presidio within the yet unidentified boundaries of Fort Winfield Scott. The "torpedo wharf", 984, was completed in 1907. Other construction included a 1,330-foot tramway from the wharf to the loading rooms, cable tanks, and main storehouse. Eight four-wheeled, three foot gauge flat cars, each with a capacity of 10,000 pounds, were procured for transporting the mines. The main storehouse had a capacity of 294 mines. Galvanized iron on structural steel covered the walls. Inside a 3,000-pound, hand-powered traveling crane moved the mines.

The depot also included two torpedo loading rooms, galvanized iron walls on wood frame, each measuring 22 feet by 44 feet and containing a cable tank. Two adjoining explosive rooms, 8 feet by 10 feet, also galvanized iron on wood frame walls. The cable tank building had three large tanks for storing the submarine cable.

The mine wharf, rebuilt on the eve of World War II was numbered 984; the mine storehouse, 979; the two loading rooms, 985 and 986; and the two explosive rooms, 987. The cable tank building, completed in 1910, was later demolished. Near the depot, an engineer storehouse, 983, was built in 1908, and an engineer plumbing shop, 989, was erected in 1909. In 1994 this last structure served as a headquarters for the Fort Point National Historic Site. On the north side of Lincoln Boulevard, across from Crissy Field's bachelor officers' quarters, stood a fuel oil tank for the mine planters, and a fuel pump house next to it. (The Army gave building numbers to neither.)

---

18. G. Pillsbury, Operations Report, November 1900, Letterbooks 1896-1902, OCE, RG 77; Special Orders 240, October 12, 1903, Post Orders, PSF, RG 393, NA; Thompson, *Fortifications*, pp. 218-219.

In connection with the submarine mining project, army engineers constructed a concrete mine casemate, 1600, at Baker Beach in 1912. This structure was by no means bombproof, the walls being eight inches thick and the roof tar and gravel over wood. Not until World War I were the seaward and end walls increased to five feet in thickness and a five-foot concrete roof added with nine feet of sand over that. This mining casemate controlled one of the mine fields planted outside the harbor.[19]

Electricity

By 1900 electricity had come to the new batteries. In February the San Francisco district engineer reported that three "electric lighting plants" had been installed, one for batteries Lancaster, Cranston, and Miller; one for Saffold and Crosby; and a third for the McKinnon-Stotsenberg mortars. Shortly thereafter, the Dynamite Battery having been declared obsolete, officers discussed the possibility of using the battery's power plant for lighting not only the fortifications but possibly the entire Presidio. The 1906 earthquake destroyed the power plant building putting a temporary halt to further electrification. But in 1910 a new central power for all of Fort Scott's batteries became operational on the same site. The especially designed concrete building, 1398, contained a boiler room, engine room, shop, storehouse, and lavatory.[20]

New uses were found for Dynamite Battery itself. By 1912 the Army used it for storage. Following World War I an artillery fire control switchboard and a post telephone switchboard for the fort were installed and two of its rooms converted to sleeping quarters.[21]

Damage Control

---

19. Thompson, *Fortifications*, pp. 122-123, 126, 174-175, 227-229, 251, and 275.

20. C.E. Davis, February 24, 1900, to Chief of Engineers, OCE, RG 77; J.B. Rawles, August 25, 1902, to Department of California, Letters Sent, PSF, RG 393, NA; Johnson, "Electric Lighting, *U.S. Artillery*, 36:44. In the 1970s the building served as a classroom.

21. Thompson, *Fortifications*, p. 164.

Following the great earthquake of 1906, army engineers carefully inspected the fortifications to determine the extent of damage. Rumors had already spread that Battery Chamberlin had been wrecked. The inspection showed that the wreckage consisted of a surface drain having cracked and a terra cotta chimney broken. Other batteries suffered similar minor damage and their fighting efficiency remained unimpaired. New cracks had appeared in the concrete and some old cracks had widened, causing leaking. Window glass had broken and some doors had become difficult to operate. Earthen slopes had slipped but repair was possible.

Safety was always an important factor in the operations of the batteries and Fort Winfield Scott's record in this regard was remarkably free of serious incident. In the spring of 1909 two similar accidents resulted in investigations by boards of officers. At Battery Stotsenberg the gun crew dropped a projectile into the well of mortar 1, pit A, breaking the distribution box. Three weeks later a projectile fell into the well of mortar 3 at Battery Howe, this time breaking the translator roller, equalizing pipe, and the ladder. In neither case did personnel injuries occur.[22]

World War I and World War II

When the First World War began in August 1914 with the German assault on Belgium and France, Germany's modern guns demonstrated that Belgium's fortifications of the 1890s had become out of date. Further, the British production of the *Queen Elizabeth* class of battleships in 1914, armed with 15-inch steel guns, alarmed American officers. They swiftly concluded that the United States must have coastal guns of at least as great a caliber and range. The major direct fire gun of the future would be the immense 16-inch rifle. The 12-inch gun was still important but it needed changes in the carriage so as to increase its elevation and a lighter projectile. When those changes were made the 12-inch rifle would have an effective range of 22,000 yards.

Fort Winfield Scott received neither the 16-inch nor the improved 12-inch weapons although the Harbor Defenses of San Francisco acquired both. The new weapons were located so as to intercept an enemy farther out to sea – at Forts Barry, Funston, and Cronkhite, While continuing to be armed, many of Scott's

22. C.H. McKinstry, May 8, 1906, to Chief of Engineers, OCE, RG 77; Special Orders 83, April 15, 1909, and Special Orders 99, May 5, 1909, Post Orders, PSF, RG 393, NA.

batteries would soon become obsolete.

In 1915 the Army decided that mortar Batteries Howe and Arthur Wagner no longer needed to be manned inasmuch as mortars at Forts Barry and Miley were more effective. Beginning in late 1917, after the United States entered the Great War, the Army began dismounting fort Winfield Scott's armament:

> Battery Chamberlin. The four 6-inch guns and their disappearing carriages were dismounted in 1917 and sent to the Watervliet Arsenal in New York. (In 1920 the battery was modified and emplacements 2 and 3 rearmed with two 6-inch guns on pedestal mounts with shields.)
>
> Battery Slaughter. Its three 8-inch guns were dismounted in 1917 also and shipped to Watervliet.
>
> Battery Marcus Miller. The three 10-inch guns were dismounted in 1920.
>
> Battery Boutelle. Its three 5-inch guns were dismounted before February 1918 for service as field artillery abroad.
>
> Battery Lancaster. Two of the 12-inch guns were dismounted in May 1918 and sent to Watervliet Arsenal. The third gun was moved a month later to Battery Chester at Fort Miley.
>
> Battery Baldwin. four 15-pounder, 3-inch guns were dismounted in 1920.
>
> Battery Arthur Wagner. All eight of its 12-inch mortars were dismounted in 1920 also.

A total of twenty-three heavy weapons remained at Scott after World War I: Battery Stotsenberg, eight 12-inch mortars; Battery William McKinnon, four 12-inch mortars; Battery Cranston, two 10-inch guns; Battery Godfrey, three 12-inch guns; Battery Saffold, two 12-inch guns; Battery Crosby, two 6-inch guns; and Battery Chamberlin, two 6-inch guns (after 1920).[23]

A new element entered San Francisco's defenses in 1920 with the arrival of the 14th and 24th Balloon

---

23. Thompson, *Fortifications*, pp. 264, 277, and 280. Battery Sherwood's two 5-inch guns and Blaney's four 15-pounders had also been removed by this time.

Companies, U.S. Army Air Service, from Fort Omaha, Nebraska, for duty with the coast defenses. Both outfits first occupied quarters in the World War I artillery cantonment north of Fort Winfield Scott's parade ground. The 14th Company then spent the summer in the Pacific Northwest, returning to San Francisco in October. No doubt encouraged by San Francisco's sometimes fierce winds, the secretary of war reported that balloon stations were being constructed at Forts Barry and Winfield Scott at a cost of $205,000. Balloon hangars, hydrogen generator houses, and fields for maneuvering the winches were constructed at both posts. At Scott this work involved clearing trees, grading, and hauling out rock (to Crissy Field). The stations were completed in 1921. Meanwhile, the 14th Company kept its balloons at Fort Funston, while the 24th Company, now stationed at Fort Baker, kept its balloons at Fort Barry.

Balloons had been used extensively in France for observation purposes during World War I. Now, at San Francisco the companies worked to develop a system of tracking moving vessels for the benefit of the coastal batteries. This concept was not considered especially successful and in a change of tactics coastal guns fired at targets using only data supplied by the balloons. In the first test out of twelve rounds fired, nine were hits. Other successful exercises followed, making the San Francisco defenses the first in the nation to employ manned balloons working with coastal weapons.

In 1921 Crissy Field became fully operational and the personnel of both companies moved there for quarters and assisted in beautifying the area. A date has not been determined for the departure of the companies from San Francisco nor the reasons for the move. It is known that Crissy Field's airplanes continued to work with the coastal defenses, perhaps more efficiently than the balloons. Perhaps it was the wind. The record is silent after 1921.[24]

Following much discussion and planning, Fort Winfield Scott received its first antiaircraft weapons in 1920. The two 3-inch guns on fixed pedestal mounts were emplaced on concrete gun plugs constructed on the left flank of Battery Godfrey. Five years later both weapons were dismounted and transferred to Fort Funston.

Construction of the Golden Gate Bridge in the 1930s affected the coastal defenses of Scott. Portions of Batteries Lancaster and Slaughter, long since disarmed but whose magazines were used for storage, were

---

24. *Ibid*, pp. 286-288; Quartermaster Completion Reports 1917-1918, Fort Winfield Scott, OQMG, RG 92, NA; War Department, *Annual Reports 1920*, 1: 1484 and 1572.

destroyed. Battery Baldwin was said to have been buried by the construction of the bridge approach road, Doyle Drive, as was a portion of old East Battery. The Golden Gate Bridge District not only saved the ancient masonry fort at Fort Point from destruction, it agreed to finance the replacement of other defense elements that had been lost to construction, including several fire control stations, shops, and ammunition storage facilities. The District paid for building the bombproof Central Reserve Magazine at Scott, 1470 and 1471, cost $125,000. The magazine had a capacity of 1,200 rounds of antiaircraft ammunition, 1,600 rounds of 155mm shell, 1,600 155mm propelling charges, small arms ammunition, and 200 rounds of reserve 16-inch ammunition for Fort Funston.[25]

The world being at unrest in 1937, the U.S. Army prepared a massive document, "Annexes to Harbor Defense Project, Harbor Defense of San Francisco, 1937." A section in the document listed older batteries that would be retained only until a modernization program was completed. Only three of these were batteries, still armed, were at Fort Winfield Scott: Saffold, two 12-inch guns (indirect fire, entire water area); Godfrey, three 12-inch guns (direct fire, main channel); and Crosby, two 6-inch guns (direct fire, main channel). Of the batteries to be retained after modernization was completed, only one of Scott's batteries made the list – Chamberlin, two 6-inch guns (direct fire, main channel).

The same document set forth the artillery fire control installations that the future required. Those listed for Fort Winfield Scott:

> Harbor Defense Station, a large two-story concrete structure located at an elevation of 307 feet, located on top of the old Dynamite Battery.[26]
>
> Group 4 Station, Primary Armament at Forts Winfield Scott and Baker, located on Rob Hill at an elevation of 378 feet. Demolished at an unknown date. Only a trace remains visible.
>
> Battery Chamberlin's stations: BC B^1, on left flank of the battery, and B^3 at Fort Point, elevation 134 feet.

---

25. Historical Outline Information, June 1973, Master Plans, PSF; Thompson, *Fortifications*, pp. 289-291.

26. The writer had thought this to be the concrete structure 1344 located south of the West Coast World War II Memorial on Washington Boulevard. Recent information identifies this structure as a Battery Saffold fire control station.

Battery Crosby's BC B^1 station stood behind the battery at elevation 245 feet (not extant).

Battery Saffold's stations at Scott were the BC station between the two guns, elevation 317 feet, and the B^1S^1 station on the left flank of the battery, elevation 309 feet (see note 26).

Battery Godfrey's one station at Scott, BC B^1, was at the battery, elevation 275 feet.

The Main Channel minefield had two stations on the reservation: MII^1 at Fort Winfield Scott's elevation 296 feet and MII^2 at an elevation of 127 feet near Fort Point.

The one coastal searchlight at Scott called for in the 1937 project was Searchlight 8 mounted on top of the old brick fort.[27]

World War II wrought considerable changes in Fort Winfield Scott's defenses. In the months following Pearl Harbor a number of new batteries, primarily anti-motor torpedo boat weapons, machine guns, and 40mm antiaircraft guns guarded the headlands. Two batteries were established on the barbette tier (roof) of old Fort Point: Batteries Gate and Point, each two 3-inch guns, and Battery Scott, one 37mm gun, was on the seawall outside the fort. Battery Baker, two 90mm guns on fixed mounts and two mobile 90mm guns, was located on Baker Beach. A second "Battery Scott," consisting of a 37mm gun and a .50 caliber machine gun, stood in front of Battery Crosby.

Behind Battery Marcus Miller the four weapons of Antiaircraft Battery 6 stood guard. Another .50 caliber machine gun stood on top of Dynamite Battery. A 40mm gun was located in the area east of the Golden Gate Bridge toll plaza. Just north of Fort Winfield Scott's southern boundary a 40mm antiaircraft gun stood guard. Also at the fort a radar set, SCR296, was mounted on a knoll north of Battery Chamberlin. In the vicinity of Batteries William McKinnon and Stotsenberg a .50 caliber machine gun and a 40mm gun offered protection. Other 40mm guns were mounted west of the reservoir 313 and between Batteries Sherwood and Blaney.[28]

---

27. Thompson, *Fortifications*, pp. 317-321 and 330-342.

28. *Ibid*., pp. 71 and 374; Map, Fort Winfield Scott, September 15, 1943. Notes were made from the map twenty years ago. The map was not available for this study.

While these antiaircraft and anti-motor torpedo boat weapons had become important in San Francisco's defenses, the fifty-year-old Endicott batteries were rapidly becoming obsolete, especially after the United States' victory at the Battle of Midway in 1942 when the threat of a Japanese invasion of the West Coast faded. In 1943 the Army took steps to salvage the remaining batteries at Scott: Cranston, Saffold, Crosby, Stotsenberg, McKinnon, and Godfrey (the first of the then-modern batteries to have been completed). Only Battery Chamberlin's two 6-inch guns survived World War II.

During the war the Harbor Defenses of San Francisco installed an emergency communications system between the main fire control command installations in case cables or radios could not be used. Due to the proximity of the several forts this system of blinker lights worked successfully, although an emergency never arose. The lights were installed on Wolf Ridge, Point Bonita, Horseshoe Bay, Fort Point, Fort Scott highlands (Rob Hill?), Baker Beach, Fort Miley, and south Fort Funston.[29]

Early in the war the decision was made to have the mine casemate at Baker Beach control the mines at both the Main and South channels. Because the structure proved too small for such an operation, the engineers recommended construction of a new combined casemate having separate facilities for each field. The new casemate, 1601, was completed in 1943.[30]

At the beginning of the war the Harbor Defenses of San Francisco had a Harbor Defense Command Post (HDCP), which was the Army operations center for the defense of San Francisco Harbor, in a 37 foot by 87 foot structure erected on top of eighteen-foot concrete bents above the floor of the pit of Gun 1 in old Dynamite Battery. Two wood frame wings on either side and resting on the parapet, constructed in 1942, failed to provide adequate space for the HDCP and associated activities. Moreover the HDCP and its wings had only wood and graveled tarpaper roofs, hardly adequate in case of attack. The Antiaircraft Groupment Command Post was housed in an abandoned casemate elsewhere. The Fort Winfield Scott Fire Control Switchboard occupied a cross corridor of Dynamite. It was much too crowded and a bomb hit would collapse it. Also, the power plant for the HDCP operated from another Dynamite corridor. General DeWitt wrote Washington in December 1942 urging the construction of a new combination

---

29. Special Projects, Harbor Defense, San Francisco, Annex B, Adjutant General's Office, RG 407, NA.

30. *Ibid*., Annex F.

Harbor Defense Command Post – Harbor Entrance Control Post (HDCP-HECP) saying, "Further delay cannot be tolerated." Washington responded negatively saying that offensive activities had a higher priority over defensive activities at that time. The Harbor Defenses did not acquire a new bombproof HDCP-HECP until 1943, it too being located on top of the parapets of Dynamite Battery. A new fire control switchboard (not bombproof) was constructed adjacent to it.[31]

The War Department had named the Fort Point area Fort Winfield Scott in 1882 but did not specify a boundary line separating it from the Presidio. In 1912 coast artillery troops occupied the new facilities of Fort Winfield Scott and again there appeared not to have been an official boundary line. Not until the last years of World War II did a notice appear indicating that the boundary had been fixed, "The interior boundary between Fort Winfield Scott and the Presidio of San Francisco was last defined by letter, Hq. Fort Winfield Scott and Sub-Posts ... to the Commanding General, Ninth Service Command, dated 2 May 1944, subject: "Boundary Line Between Ft. Winfield Scott and Presidio of San Francisco."" Ironically, Fort Winfield Scott was soon to revert to being a part of the Presidio of San Francisco.[32]

Within two months of Japan's surrender in August 1945, coast artillery troops no longer manned any of San Francisco's seacoast batteries. In 1950 the Coast Artillery Corps merged with the Field Artillery into a single artillery arm, including air defense (antiaircraft) artillery. The Army quickly found new uses for Scott's batteries. At Cranston a magazine became a dormitory for personnel assigned to the Scott Signal Station, 1665. Mortar Battery Howe-Wagner served as an air raid shelter for civilians. Batteries Sherwood and Blaney were transferred to the Presidio and used as storage. Similarly, William McKinnon and Stotsenberg became storage facilities for ammunition and other materials. The U.S. Navy continued to occupy the Harbor Defense Command Post until 1959. Even then it maintained navy triangulation and Shoran stations at the Presidio. In 1961 an Engineer company used the Dynamite Battery as a training area. Sixth U.S. Army designated Dynamite as an alternate emergency operations center in 1981. An inspection of this facility in 1986 discovered that water containers were empty and rodents had got into rations.[33]

---

31. J.L. DeWitt, October 17, 1942, and associated correspondence, Harbor Defense Files, OCE, RG 77, NA.

32. Annex A, Supplement to Harbor Defense Project, 1945, RG 407, NA. A copy of the lengthy boundary description was on file in Master Plans Office, PSF.

33. Feeder Data/Reading Files, Master Plans, PSF; Thompson, *Fortifications*, p. 390 and 409-410.

The U.S. Army had maintained coastal defenses at the Presidio of San Francisco for almost 100 years. Then, suddenly, they had gone. But a new era was beginning when the Antiaircraft Command developed into the U.S. Air Defense Command.

Missiles

In 1946 the "Artillery School, Seacoast" began operations at Fort Winfield Scott. Despite the name, the school's curriculum concentrated on antiaircraft defense. The huge guns of the Endicott era were replaced by 90mm dual purpose guns, 155mm [120mm?] guns, and radar. In 1951 Fort Baker became the headquarters for the Western Aircraft Command and Fort Winfield Scott became armed with 90mm and 120mm guns. By 1954 the first Nike Ajax missiles had been activated in the Bay Area. Fort Winfield Scott became the site of Nike Missile Battery SF-89. The troops occupied the fort's quarters and offices while the missile launch area was located in the southern part of the post. This was the only Nike battery to be given a name – Battery Caulfield after a former commander. Lt. Col. Thomas D. Caulfield, reportedly killed in an automobile accident in 1955.[34]

The battery came under the withering criticism of a congressman in 1959 when he said that it was operated with "shocking laxity." The Army denied the charge. The regular troops transferred in 1960 and a unit of the California National Guard took control of Battery Caulfield. Although the advanced Nike Hercules missile was introduced to the Bay Area in 1958, Fort Winfield Scott's battery continued to operate with its Ajax missiles until the battery was inactivated about 1961.

The Nike era had but a short life. In 1974 the U.S. Army closed the last Nike Hercules batteries in the Bay Area. These post-World War II years were important, nevertheless, as the United States engaged in another type of defense, a defense needed to meet the challenges of the Cold War. Some have said that San Francisco's coastal defenses had never been needed because there had never been any attacks. Others said that there had never been attacks because the coastal defenses were there.

---

34. It was not common to give names to Nike missile batteries, and Battery Caulfield may have been the only one so named in the nation. Col Milton B. Halsey, Jr., to Gordon Chappell, NPS, August 1990.

The Endicott construction program of the 1890s and early 1900s demanded adequate facilities for the coast artillery troops reasonably close to the emplacements. Thus was the post of Fort Winfield Scott finally realized.